CHARLES DARWIN UNIVERSITY

Family Name	
Given Names	
Student Number	
Teaching Period	Semester 1, 2017

FINAL EXAMINATION	**DURATION**
HIT326 – Database-Driven Web Applications	Reading Time: **10** minutes Writing Time: **120** minutes

INSTRUCTIONS TO CANDIDATES

You should attempt any **FIVE** of the ten questions. Answer only five questions. You will not receive additional marks for additional answers. The five lowest marks will determine the result if more than five questions are answered.

EXAM CONDITIONS

You may begin writing from the commencement of the examination session. The reading time indicated above is provided as a guide only.

This is a RESTRICTED OPEN BOOK examination

No calculators are permitted

One A4 sheet of handwritten double-sided notes permitted

Any hard copy, unannotated English dictionary is permitted

ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED
No additional printed material is permitted	1 x 20 Page Book

THIS EXAMINATION IS PRINTED DOUBLE-SIDED.

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Short Answer Questions

Total No of Marks for this section: 10

This Exam should be answered in the Answer Booklet provided.

You should attempt any **FIVE** of the **TEN** questions. You should answer ONLY Five of the questions below. You will not receive additional marks for additional answers. The five lowest marks will determine the result if more than five questions are answered.

Marks for each question are indicated.

Suggested time allocation for the Exam: 120 mins.

Question 1

Briefly discuss the ``**Model-View-Controller''** (MVC) design pattern, and how it can be used to organize application code.

(Marks: 2)

Question 2

Explain the purpose of database transactions in the context of **ACID-compliance**.

(Marks: 2)

Question 3

What is the PHP function you would use to end a session and destroy all registered variable.

(Marks: 2)

Question 4

Answer both parts of this question.

Part A

1) Write three separate lines of PHP code to complete the following tasks in sequence:
   a) Declare the variable mynum and assign the number 628 to it.
   2) Declare a second variable called noname and assign the contents of the variable mynum to it.
   3) Assign the text 'twopi' to the variable mynum.

(Mark: 1)

Part B

Consider the following PHP **code**.

```
$messages = array();

$messages['errcode'] = "E2134";
$messages['error'] = "Database problem";
$messages['desc'] = "Error database login failed.";

foreach($messages As $key => $value){
    /* ADD CODE HERE */
}

echo "<p>{$errcode}</p>";
echo "<p>{$desc}</p>";
```

Write one line of code that code be placed in the above code in the area marked

/*ADD CODE HERE*/ so that the echo code fragment prints

E2134 Error database login failed.

(Mark: 1)

Question 5

Explain why database **transactions** are an important concept in Relational Database Management Systems.

(Marks: 2)

Question 6

Briefly describe the CRUD database operations? Draw a table that shows the maps of the CRUD operations, HTTP requests, SQL commands and PHP array (server) values.

(Marks: 2)

Question 7

Discuss the ``**Prepare''** statements and their advantages. Give some example code of an insert function that uses the prepare statement.

(Marks: 2)

Question 8

Discuss the **HTTPS** protocol and when it should be implemented in web applications.

(Marks: 2)

Question 9

Cookies are inappropriate for storing large amounts of data, what is a solution to this limitation?

(Marks: 2)

Question 10

Draw a diagram that describes the Ajax Web application model. Briefly describe the advantage of Ajax application model compared with the traditional HTTP model.

(Marks: 2)